

CLAIMS

1. A photocatalyst module comprising a substrate, a photocatalyst, and a protective layer containing lithium silicate provided between the substrate and the photocatalyst.
- 5 2. The photocatalyst module according to claim 1 wherein said protective layer containing lithium silicate is a film obtained by applying a paint prepared from a vehicle containing 80 to 90 % by weight of lithium silicate and 10 to 20 % by weight of sodium silicate on the surface of said
10 substrate.
3. The photocatalyst module according to claim 2 wherein said vehicle further contains 0.1 to 10 % by weight of a resin emulsion which is not gelatinized under an alkaline condition of a pH of 11 to 12.
- 15 4. The photocatalyst module according to any one of claims 1 to 3 wherein said photocatalyst is titanium oxide.
5. The photocatalyst module according to any one of claims 1 to 4 wherein said photocatalyst is in a shape of a layer of particles.
- 20 6. A process for producing a photocatalyst module having a layer of a photocatalyst on the surface thereof comprising forming a film containing lithium silicate on a substrate and then forming the layer of a photocatalyst on the surface of the film.
- 25 7. The process for producing a photocatalyst module according to claim 6 wherein said film containing lithium silicate is formed by applying a paint prepared from a

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vehicle containing 80 to 90 % by weight of lithium silicate and 10 to 20 % by weight of sodium silicate on the surface of said substrate.

8. The process for producing a photocatalyst module according to claim 7 wherein said vehicle further contains 0.1 to 10 % by weight of a resin emulsion which is not gelatinized under an alkaline condition of a pH of 11 to 12.

9. The process for producing a photocatalyst module according to any one of claims 6 to 8 wherein the molar ratio of lithium oxide (Li_2O) to silicon dioxide (SiO_2) (lithium oxide : silicon dioxide) in the lithium silicate is 1:3.

10. The process for producing a photocatalyst module according to any one of claims 6 to 9 wherein the formation of said layer of a photocatalyst is carried out by a flame spray coating method.

11. A photocatalyst reaction apparatus provided with a photocatalyst module defined in any one of claims 1 to 5.

12. A photocatalyst reaction apparatus comprising a water tank provided with a photocatalyst module defined in any one of claims 1 to 5, water introducing means, water discharging means, and means for radiating ultraviolet rays.

13. A photocatalyst reaction apparatus comprising a water tank on at least a part of the inner wall surface of which tank a photocatalyst is provided through a protective layer containing lithium silicate, the water tank further having means for introducing water to be treated, means for

